S/M No.:RFP326N001

Service Manual

Refrigerator

RF-405.. RF-425.. RF-455..

RN-405.. RN-425.. RN-455..

RFP-326.. RFP-346.. RFP-356..

✔ Caution

In this manual, some parts can be changed for improving their performance without notice. So, If you need the latest parts information, please visit and refer to PPL (Parts Price List)] in Service Infromation Center. (http://svc.dwe.co.kr)

MAY. 2010.

1. Model Information

* is the Color

Refrigerant Type		R-134a			R-600a		
Model No.		RF-405N**	RF-425N**	RF-455N**	RN-405N**	RN-425**	RN-455N**
Control Type		FCP Button Control					
Gross Vol. (ISO 15502)	Total	365	375	404	365	375	404
	Freezer	120	120	120	120	120	120
	Refrigerator	245	255	284	245	255	284
Storage Vol. (ISO 15502)	Total	315	332	358	315	332	358
	Freezer	90	90	90	90	90	90
	Refrigerator	225	242	268	225	242	268
Diemension	Width	595	595	595	595	595	595
	Depth	651	651	651	651	651	651
	Height	1857	1897	2000	1857	1897	2000
Cooling Cycle	Refrigerant Charge	95g			40g		
	Evaporator Type	Fin Type					
	Condenser Type	Fan Cooling System					
	Dryer	Molecular Sieve xH-9					
	Capillary Tube	ID0.7 x T0.55 x L2320					
	Defrost Type	Automatic Start & Stop					
Heater	Defrost Heater	AC230V, 180W			AC230V, 160W		
	Defrost Shape	Glass Type			Sheath Type		
	Freezer Fan Motor	AC 220V/50Hz, 2500RPM					
Electric Part	Condenser Fan Motor	AC 230V/50Hz, 2400RPM					
	Refrigerator Lamp	LED					
Weight		67	69	73	67	69	73
Blowing Agent		C-Pentane					

2. Interior Parts

- Features are model dependent
(Below is RN-425N model)**

1. Refrigerator Shelves

2. LED Window

3. Multi Duct

4. Fresh Care Crisper (option)

5. Cover Vegetable Case

6. Vegetable Case

7. Feezer Case B

8. Freezer Case C

9. Dairy Pocket As

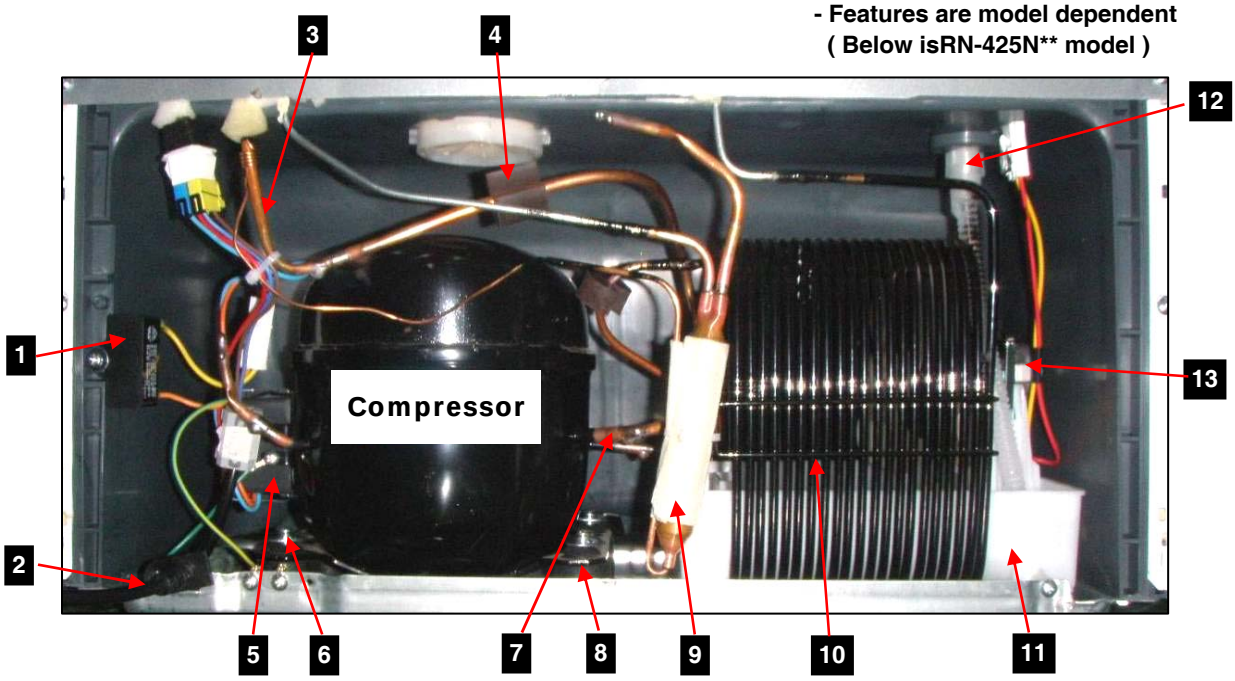
10. Refrigerator Pocket (Pocket Bottle)

11. Refrigerator Pocket (Pocket R *M)

12. Adjustable Foot

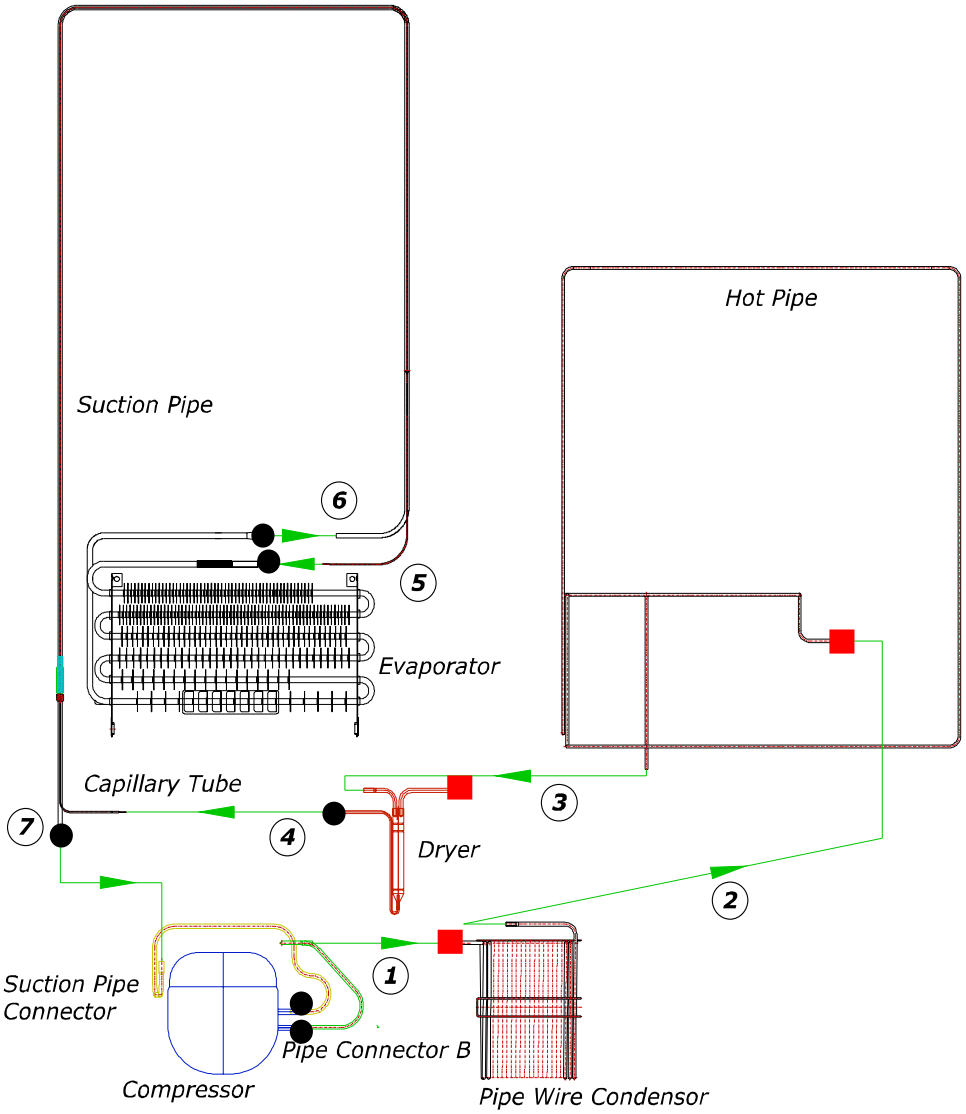
3. Machine (Compressor) Compartment View

- Features are model dependent
(Below isRN-425N** model)



1. Capacitor Run
2. Power Cord
3. Suction Pipe As
4. Pipe Absorber
5. Box Relay As
6. Fixture Compress (Washer)
7. Pipe Connector B
8. Compressor Absorber
9. Dryer As
10. Pipe Wire Condensor As
11. Case vaporization As
12. Drain Hose
13. Compressor Cooling Fan

4. Refrigerant Cycle



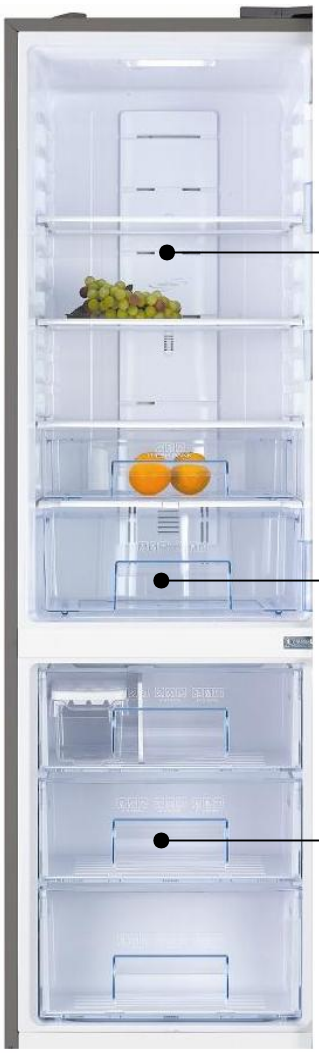
- Welding Point

●	Copper Welding (Ag 5%)	6 Point
■	Silver Welding (Ag 30%)	3 Point

5. Temperature Diagram

* Features are model dependent

(Below model is RN-421N*)



Refrigerator Dial Mode

MIN : 3 ~ 6 degree
NOR : 0 ~ 3 degree
MAX : -2 ~ 0 degree

Vegetable compartment
: 1 ~ 5 degree

Freezer Mode
MAX : below -20 degree
NOR : -18 ~ -20 degree
MIN : -16 ~ -18 degree

⚠

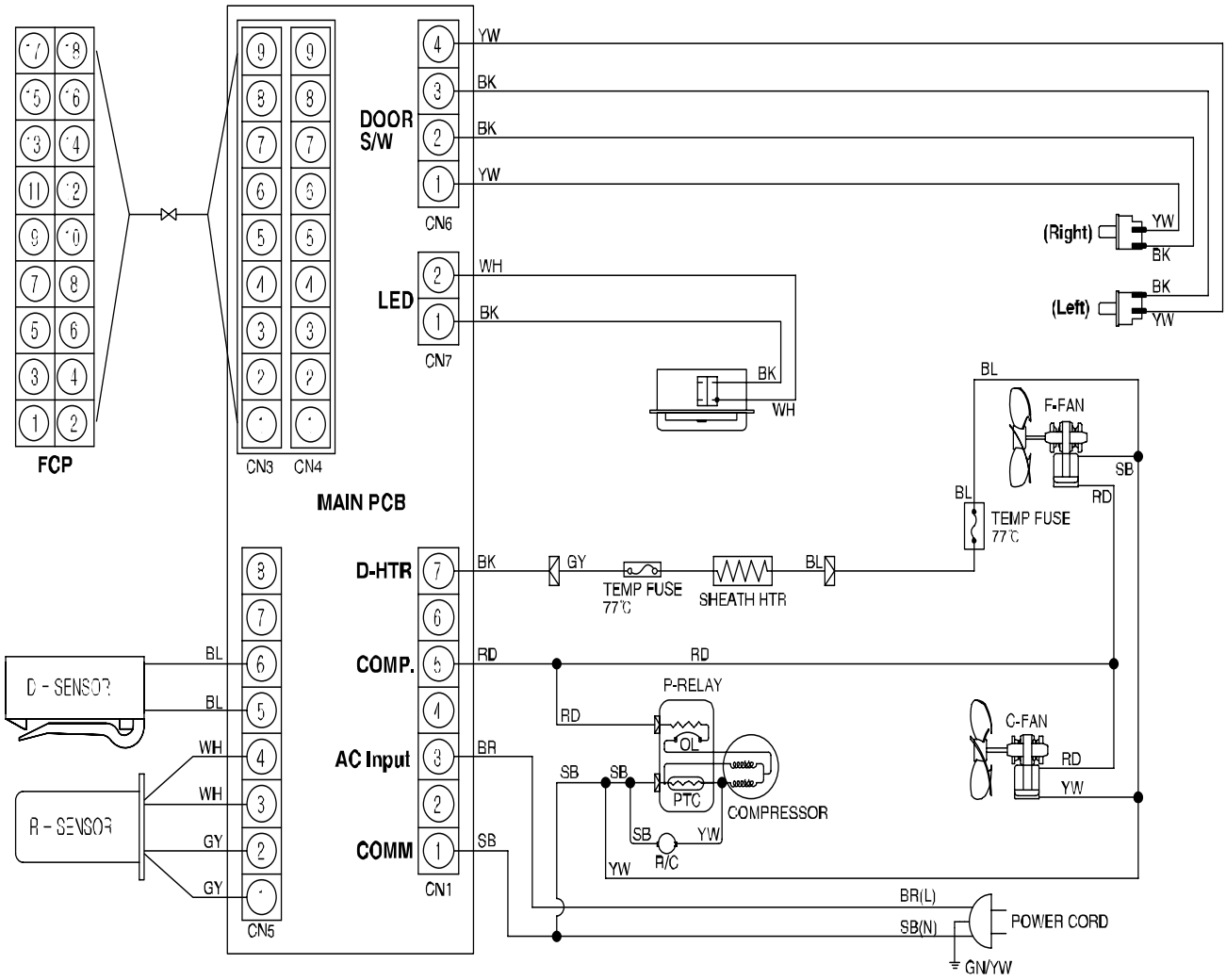
; The actual inner temperature varies depending on the food status, as the indicated setting temperature is a target temperature, not actual temperature within refrigerator.

; Refrigeration function is weak in the initial time.

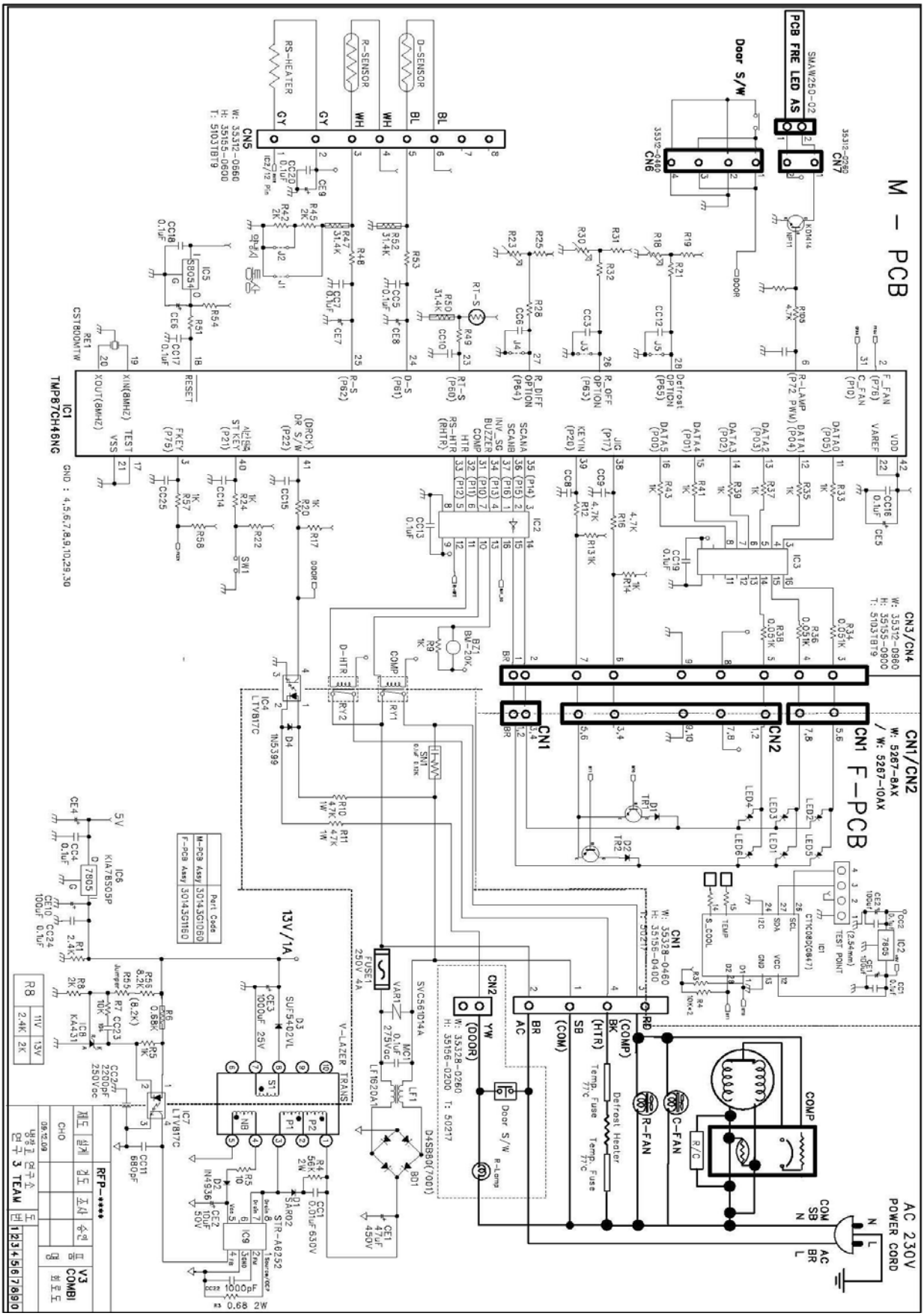
Please adjust temperature as above after using refrigerator for minimum 1 ~ 2 days.

6. Wiring Diagram

- For RN-405N** RN-425N** RN-455N**(R-600a) Models

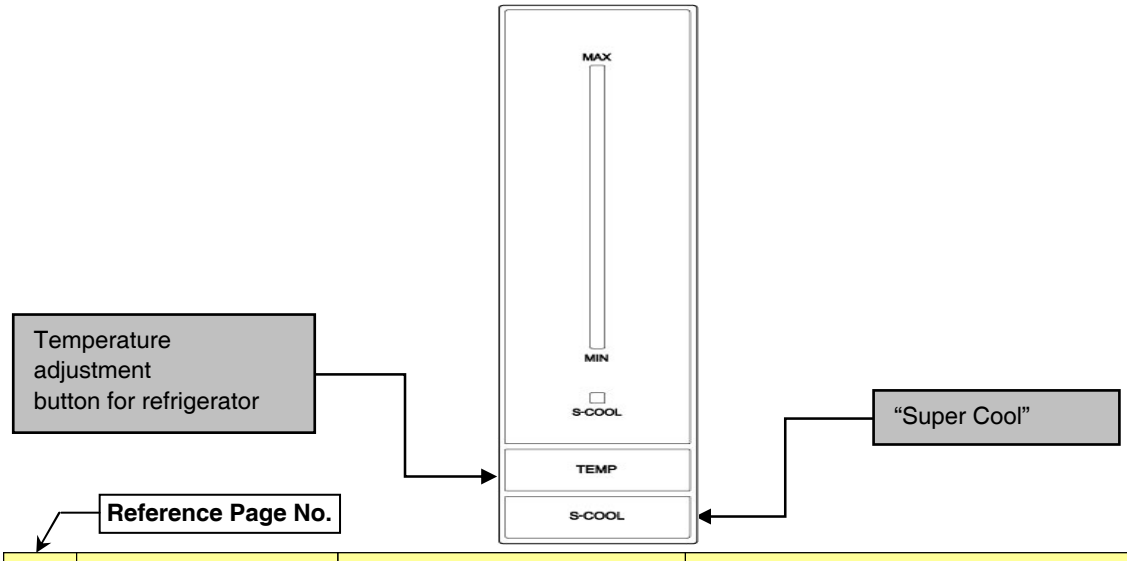


6-3. Main PCB Circuit Diagram



1. DISPLAY

INPUT	CONTROL OBJECT
PCB Control Panel Buttons	PCB Control Panel LED



	LED DISPLAY	FUNCTION	OPERATION
9	LED "NOR" on	TEMP STEP "NOR"	Initially position
	LED "MAX-NOR" on	TEMP STEP "MAX-NOR"	Push "TEMP" button 1 times.
	LED "MAX" on	TEMP STEP "MAX"	Push "TEMP" button 2 times.
	LED "MIN" on	TEMP STEP "MIN"	Push "TEMP" button 3 times.
	LED "MIN-NOR" on	TEMP STEP "MIN-NOR"	Push "TEMP" button 4 times.
	LED "S-COOL" on	TEMP S-COOL	Push "S-COOL" button 1 time.
18	"NOR" flickeringly	ERROR "R SENSOR" (R1)	Push "S-COOL" button for continuously and "TEMP" button 5 times. **The Priorities of Error :** R SENSOR> RT SENSOR> DR S/W> CYCLE> DEFROST
	"MIN-NOR"	ERROR "RT SENSOR" (RT)	
	"MIN" flickeringly	ERROR "D SENSOR" (D1)	
	"MIN-NOR" & "NOR"	ERROR "DOOR S/W" (DR)	
	"MIN" & "NOR"	ERROR "CYCLE" (C1)	
	"MIN" & "MIN0NOR"	ERROR "DEFROST" (F3)	
11	"NOR"&"S-COOL" on, "MAX-NOR" & " MAX" flickeringly	Forced Defrost Test	Push "TEMP" button for continuously and "S-COOL" button 5 times. And then, push "S-COOL" button for continuously and "TEMP" button 5 times.
	"MIN" & "S-COOL" on "MAX-NOR" & " MAX" flickeringly	Pull Down Test	Push "TEMP" button 30 times. And then, push "S-COOL" button for continuously and "TEMP" button 5 times.

2. Temperature Control of Refrigerator Compartment

INPUT	CONTROL OBJECT
PCB Control Panel “TEMP” Buttons R-sensor	PCB Control Panel LED COMPRESSOR, FAN

A. “TEMP” Button

1. Temperature control of Refrigerator compartment
2. 5 step mode of successive temperature mode
3. Initial mode by power input: step “NOR”
4. Temperature will be set if the button doesn’t get pressed again within 5 sec.
   - Whenever pressing “TEMP” button, setting is repeated in the order of
     “NOR” → “MAX-NOR” → “MAX” → “MIN” → “MIN-NOR” (LED LAMP ON)

B. Temperature of Refrigerator Control

1. COMP and FAN will be controlled by the on/off condition of each mode.1
2. Temperature Difference of Refrigerator each step :

Temperature Step	“MIN”	“MIN-NOR”	“NOR”	“MAX-	“MAX”
Temp. Diff. of Each Step	1.3C	1.5C	2.3C	2.2C	

3. Temperature of Refrigerator
   at step “NOR” OFF point: is -1.2C

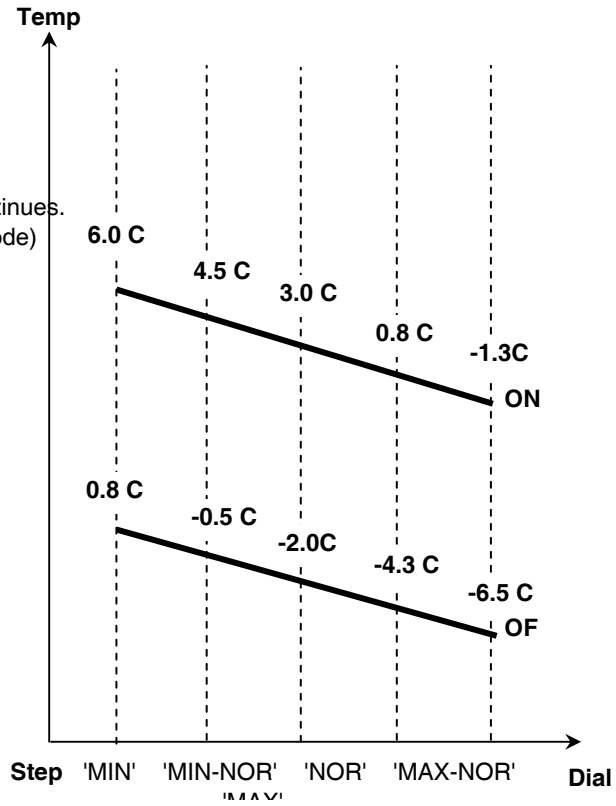
4. Refrigerator ON/OFF Temp.
   Difference: 3.4C

C. “S-COOL” MODE

1. Press S-COOL SWITCH
   and make S-COOL led lamp on.
2. COMP & FAN are on until R-sensor
   reaches to “Over Refrigeration
   OFF Point”, -7C
3. After the reach of -7°C , STEP “MAX” mode continues.
4. When “S-COOL” MODE (Quick Refrigeration Mode)
   lasts for about 40 minutes, it returns to general
   operation mode.

D. Temperature of Freezer Control

-It will be only controlled by using
“KNOB F LOUVER” in Freezer.



3. Defrost Mode	
INPUT	CONTROL OBJECT
Total COMP Work Time / COMP Working Rate Total Door Open Time / RT	Defrost Mode

Conditions of Defrost Mode

A. When total operation time of compressor becomes: 6, 8, 10, 12 hours.
- any error mode-R1, D1, F3, C1, RT/S, Door SW error- happens.
- or, running rate of COMP (per 2hrs of total operation time) is more than 80%.
- or, total door open time is over 3 minutes.
- or, ambient temperature (RT) is more than 40C.

B. Even if the above condition "A" is not satisfied,
- Defrost mode starts immediately when total operation time of COMP is 14hrs.
- or, defrost mode starts immediately as long as total time (COMP on time + COMP off time) is 60 hrs.

Defrost Mode

A. General Defrost Mode
- How to start: By conditions of defrost
- Process :
  General operation-
  "PRE-COOL" - Defrost Heater on- Pause(10 min)-General operation
  ; PRE-COOL: When the defrost heater works, the temp. of freezer increases.
  So the COMP works for 25 min before defrost mode.
- Limited Time of Defrost Heater
  ; 40 minutes: Heater turns off when "D SENSOR" is OPEN or SHORT.
  ; 60 minutes: Heater turns off after maximum 60 minutes.
- Heater Off: When the temperature at "D SENSOR" is over 10C

	PRE-COOL	Defrost	Pause
Compressor	ON	OFF	OFF
Fan	ON	OFF	OFF
Defrost	OFF	ON	OFF

B. Forced Defrost Mode
- How to start: by press "TEMP" button for continuously and "S-COOL" button 5 times.
- Process: same as General Defrost Mode except "PRE-COOL"
  ; Heater is supposed to be on Initial 30 seconds even though the temp. at "D SENSOR" is over 10C. (for TEST)
- How to confirm: by press "S-COOL" button for continuously and "TEMP" button 5 times.
  And then, the mode displays.
- Display : led lamps "NOR"& "S-COOL" on, "MAX-NOR" & "MAX" on/off continually

3. Defrost Mode	
INPUT	CONTROL OBJECT
Total COMP Work Time / COMP Working Rate Total Door Open Time / RT	Defrost Mode

Initial Defrost

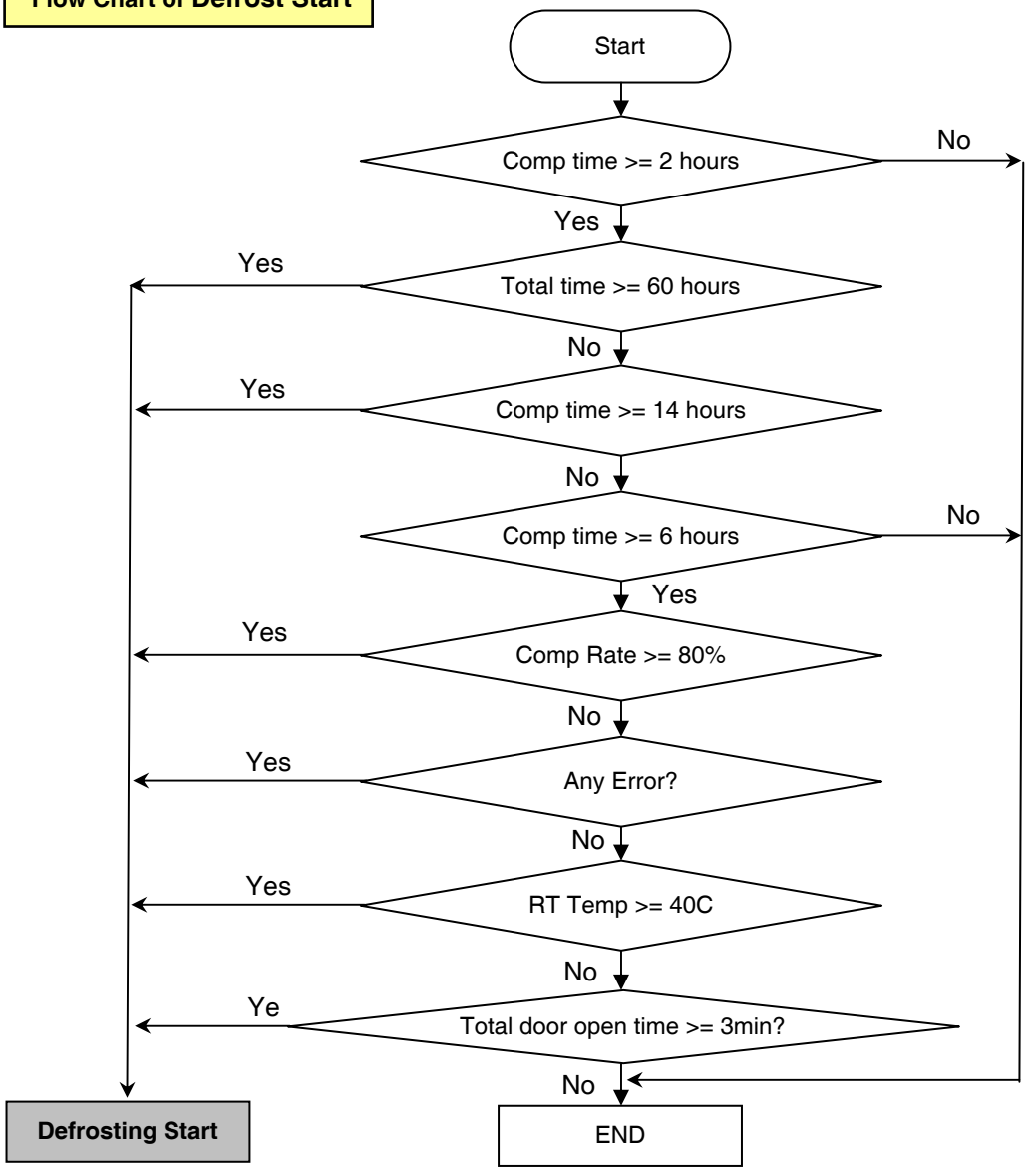
A. When initial power input or returning power failure.

if the temperature at the Defrost Sensor is below 3.5 C, Defrost Mode starts.

(It prceeds from 'PRE-COOL'), **[PRE-COOL - Heater On - Pause (10min) - Normal Operation]**

B. Initial defrost mode starts after 'Prevention of Compressor Restart'. (Refer to function No. 5)

Flow Chart of Defrost Start



4. Function of Low Ambient Temperature (RT)	
INPUT	CONTROL OBJECT
RT	R-HTR COMP

A. Condition of LOW RT
- LOW RT Period : RT sensor below 19C
- When the temperature of RT sensor is over 20C, the system comes to be “General Operation Mode”.
- When the temp. of RT sensor is between 19°C to 20C, the system keeps the previous mode.

B. Control
- When Comp. is on, R-HTR is off.
- When it passes 6 min after COMP is off, R- HTR is on.
- COMP can’t be on within 30 min after COMP is off.
  ; COMP doesn’t work at the steps “Heater On” and “Pause” of “Defrost Mode”.
  If COMP comes to be off for “Low Room Temp” in the steps, it seems to take over 30 minutes.
- Change of “Prevention Time of COMP Restart” :
  If satisfy the following conditions simultaneously, the time changes 6 minutes.
  ; Accumulated running time of COMP passes 20 seconds after COMP is off.
  ; R-Sensor is more than ‘ON’ Point TEMP.
- When it is not the mode of LOW ROOM TEMP
  or RT-Sensor is on ERROR (open or short), R-Sensor HTR is off.
- Function of R-Heater Inspection:
  After initial power is on, R-HTR is on/off 5times for 10 seconds.
- When Defrost Heater is on, R-Sensor Heater is on

5. Prevention of Compressor Restart	
INPUT	CONTROL OBJECT
	COMP

COMP. doesn’t work after COMP turns off even though R-sensor is on condition. (This is to protect comp.)
A. General operation (Temp. at the RT sensor is over 20C): The COMP can’t be on within 6 min.
B. Operation of LOW RT (Temp. at the RT sensor is below 19C):
The COMP can’t be on within 30 min.
(But the COMP can be on after 6min when the doors open more than 20 seconds.)

6. Buzzer Sound	
INPUT	CONTROL OBJECT
Control Buttons / Door Switch Initial Power Input	Buzzer

A. Whenever “PCB Control Panel” button’s pushed, the buzzer rings.
B. After 2 minutes power’s on, the buzzer rings 3 times.
C. Time of Buzzer: Forced Defrost Mode (3 times), Short Circuit Test (1 time)
D. When door opens, the buzzer rings every 1 minute for 5 minutes.

7. Time Reduction	
INPUT	CONTROL OBJECT
”FAST KEY”	Buzzer

A. HOW TO REDUCE
- 1 min : Click FAST KEY one time on MAIN PCB.
- 30 min : If you press FAST KEY continuously, you can reduce 30 minutes on each 2.5 seconds with buzzer.

B. Practice Use : Can be applied to reduce needless time on test.
EX) function of stop for 6 min

8. Demonstration Function	
INPUT	CONTROL OBJECT
“TEMP” +”S-COOL” Buttons	Display Panel

A. START : by pressing “TEMP” and “S-COOL” buttons for 5 seconds.
B. CONTROL :
- All electronic compartments are off except “Display Panel”.
- When “DEMO” mode works, led lamps will be on as next steps.
[“MIN” → “MIN-NOR” → “NOR” → “MAX-NOR” → “MAX” → “MIN”]

C. CANCEL :
Push again “TEMP” and “S-COOL” buttons for 5 seconds at “DEMO”, or turn off power and restart.

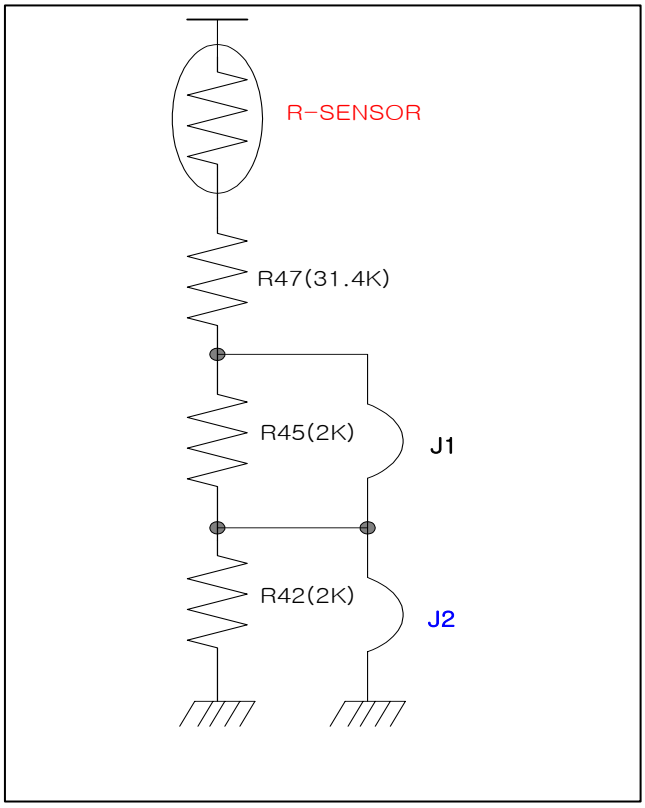
9. Control of R-sensor OFF Point

INPUT	CONTROL OBJECT
”J1” , “J2” On Main PCB	Control Resistance of R sensor OFF Point

A. LOW COOLING OPTION (Weak Cooling)

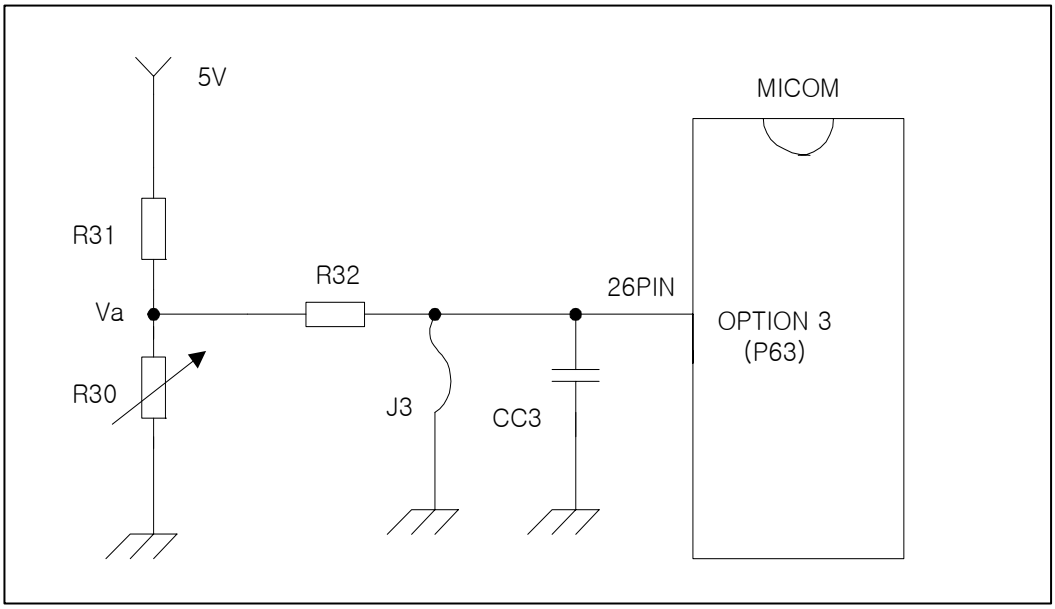
- When the refrigeration of refrigerator is poor or weak though Fan and COMP are working continuously, the following actions are recommended for service.
  - Resistance (R47) : Default resistance (31.4Kohms)
  - Resistance (R45) : Cut the “J1” off to reduce basic resistance by 1.5°C. (2Kohms up)
  - Resistance (R42) : Cut the “J2” off additionally to reduce basic resistance by 1.5°C. (total 4Kohms up)

R47 = R-SENSOR OFF point
R47 + R45 = R-SENSOR OFF point - 1.5C
R47 + R45 + R42 = R-SENSOR OFF point - 3C



9. Control of R-sensor OFF Point	
INPUT	CONTROL OBJECT
”J3” & “R30” On Main PCB	Input voltage of MICOM R-sensor ON/OFF Point

B. Prevention OPTION of EXCESSIVE OR LOW COOLING.

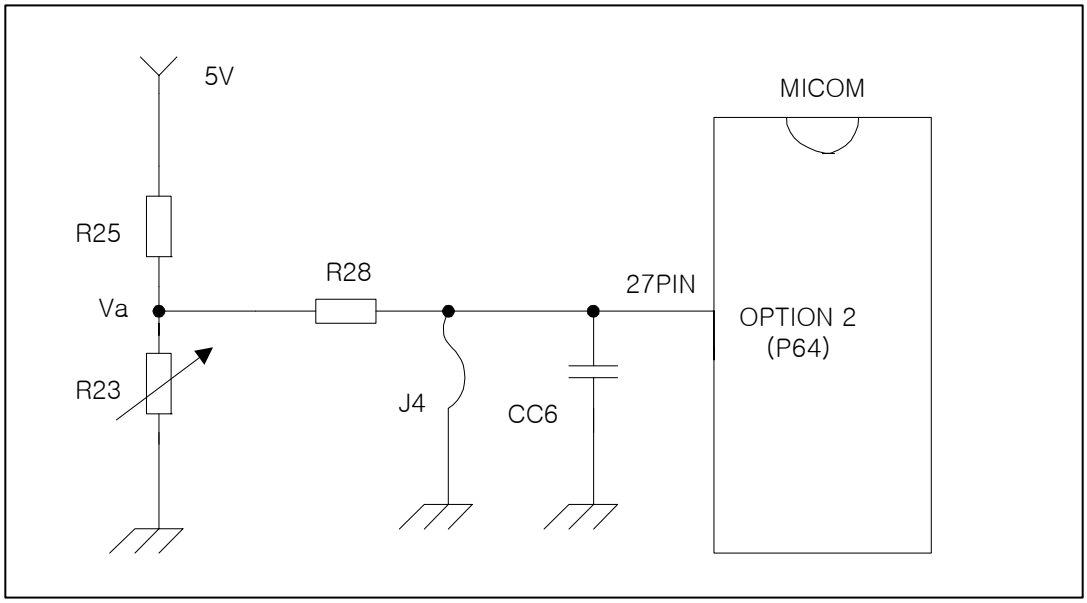


; The input voltage of MICOM and R-Sensor ON/OFF point by changing J3 & R30.

NO	TEMP. STEP “3”		APPLICATION	MICOM	Compared to “STANDARD”
	ON	OFF	(MAIN PCB)	INPUT VOL.	
1	0.3C	-1.4C	-	0V	STANDARD
2	-1.4C	-3.1C	J3(CUT), R30 (680ohm)	0.3V	-1.7C
3	-1.1C	-2.8C	J3(CUT), R30 (2kohm)	0.8V	-1.4C
4	-0.8C	-2.5C	J3(CUT), R30 (2.8kohm)	1.1V	-1.1C
5	-0.4C	-2.1C	J3(CUT), R30 (3.92kohm)	1.4V	-0.7C
6	-0.1C	-1.8C	J3(CUT), R30 (4.87kohm)	1.6V	-0.4C
7	0.7C	-1.0C	J3(CUT), R30 (6.65kohm)	2.0V	+0.4C
8	1.0C	-0.7C	J3(CUT), R30 (10kohm)	2.5V	+0.7C
9	1.4C	-0.3C	J3(CUT), R30 (19.6kohm)	3.3V	+1.1C
10	1.7C	0C	J3(CUT), R30 (40.2kohm)	4V	+1.4C
11	2.0C	0.3C	J3(CUT), R30(NO USE)	5V	+1.7C

9. Control of R-sensor OFF Point	
INPUT	CONTROL OBJECT
”J4” & “R23” On Main PCB	Input voltage of MICOM R-sensor ON/OFF Point

C. Changing Difference between R-sensor “On” point and “Off” point.



; The input voltage of MICOM and R-Sensor ON/OFF DIFF. by changing J4 & R23.

NO	TEMP. STEP “3”		APPLICATION	MICOM	DIFFERENCE OF ON/OFF POINT
	ON	OFF	(MAIN PCB)	INPUT VOL.	
1	0.3C	-1.4C	-	0V	1.7C
2	-1.0C	-1.4C	J4(CUT), R23 (680ohm)	0.3V	0.4C
3	-0.7C	-1.4C	J4(CUT), R23 (2kohm)	0.8V	0..7C
4	-0.3C	-1.4C	J4(CUT), R23 (2.8kohm)	1.1V	1.1C
5	0C	-1.C	J4(CUT), R23 (3.92kohm)	1.4V	1.4C
6	0.7C	-1.4C	J4(CUT), R23 (4.87kohm)	1.6V	2.1C
7	1.1C	-1.4C	J4(CUT), R23 (6.65kohm)	2.0V	2.5C
8	1.4C	-1.4C	J4(CUT), R23 (10kohm)	2.5V	2.8C
9	1.8C	-1.4C	J4(CUT), R23 (19.6kohm)	3.3V	3.2C
10	2.1C	-1.4C	J4(CUT), R23 (40.2kohm)	4V	3.5C
11	2.5C	-1.4C	J4(CUT), R23(NO USE)	5V	3.9C

10. Error Display

INPUT	CONTROL OBJECT
PCB Control Panel Buttons / Door	LED Lamp

- ERROR DISPLAY
  - To confirm error happens or not, push S-COOL" button for continuously and "TEMP" button 5 times.
  - To stop the Error Display Set, push "TEMP" button 1 times, or wait 4 minutes.
  - After operations back to normal, the displays come to be reset.

A. R1 ERROR

(It happens when R-Sensor is OPEN or SHORT)

- DISPLAY : STEP "NOR" LED is on & off continually.
- CONTROL :
  ; Controlled by the following condition of RT
  ; When "RT ERROR" happens at the same time, "COMP. ON/OFF Operating Time" is 16min/24min.

(Unit : min)

RT sensor TEMP	~13C	~19C	~29C	29C ~
COMP. Operating TIME (ON/OFF)	6/34	10/30	16/24	20/20

- CANCEL : when R-Sensor is working normally.

B. RT ERROR

(It happens when RT-Sensor is OPEN or SHORT)

- DISPLAY : STEP "MIN-NOR" LED is on & off continually.
- CONTROL : Delete the conditions of "RT-sensor Control" and operate normally.
- CANCEL : when RT-Sensor is working normally.

C. D1 ERROR

(It happens when D-Sensor is OPEN or SHORT)

- DISPLAY : STEP "MIN" LED is on & off continually.
- CONTROL : Return to next limit defrost time (40 min)
- CANCEL : when D-Sensor is working normally.

D. DR ERROR

(It happens when the system senses door opens more than 1 hour.)

- DISPLAY : STEP "MIN-NOR", "NOR" LED Lamps are on & off continually.
- CONTROL : Deletion of function related door switch sensing
- If door switch (open & close) is sensed, the error is terminated automatically

E. C1 ERROR

(When D-Sensor is more than -5C, Comp operates over 3 hrs)

- DISPLAY : STEP "MIN" & "NOR" LED Lamps are on & off continually.
- CONTROL : The system is normally operating
- CANCEL : When Comp is off, D-Sensor is less than -5C.

F. F3 ERROR

Return to next step after max defrost time.
(60 minutes)

6.1- DISPLAY : STEP "MIN" & "MIN-NOR" LED Lamps are on/off continually.
6.2- CONTROL : At Defrost Mode, Deletion of "PRE-COOL" Mode.
6.3- CANCEL : Completion of defrost returned by D-Sensor.

- If the appliance is normal (no error), just 'MAX-NOR' and 'MAX' LED flicker in Error Mode.

flicker

CODE	LED	ERROR
R1	"NOR"	R sensor
RT	"MIN-NOR"	RT sensor
D1	"MIN"	D sensor
DR	"MIN-NOR",	DR Switch
C1	"MIN", "NOR"	Cycle
F3	"MIN", "MIN-	Defrost

- To Confirm Errors: Push "S-COOL" for continuously and "TEMP" button 5 times.

- The Priorities of Error : R1→RT→D1→DR→C1→F3

11. Function Key Summary Table

MODE	Action	Button / Remark
Forced Defrost Mode	How to enter the Mode	Temp + S-Cool button 5 times
	How to terminate	After Mode ends (about 1 hour)
	Display	'NOR', 'S-Cool' LED ON (In Error Mode)
Pull Down Mode	How to enter the Mode	Temp button 30 times
	How to terminate	After Mode ends (about 30 hour)
	Display	'MIN', 'S-Cool' LED ON (In Error Mode)
Error Display	How to enter the Mode	S-Cool + Temp button 5 times
	How to terminate	emp button 1 time or after 4 minutes
	Display	'MAX-NOR', 'MAX' LED flicker (When no error happens)
Demo Mode	How to enter the Mode	Temp + S-Cool button for 5 seconds
	How to terminate	Temp + S-Cool button for 5 seconds
	Display	LED Lamps will be on as next steps. ('MIN' - 'MIN/NOR' - 'NOR' - 'MAX/NOR' - 'MAX' - 'MIN')

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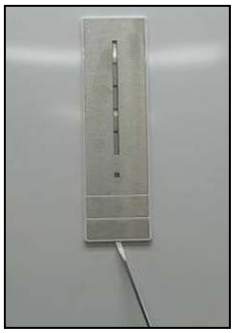
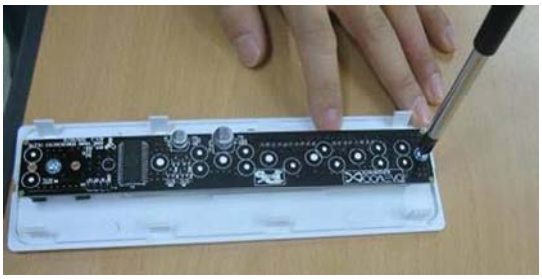
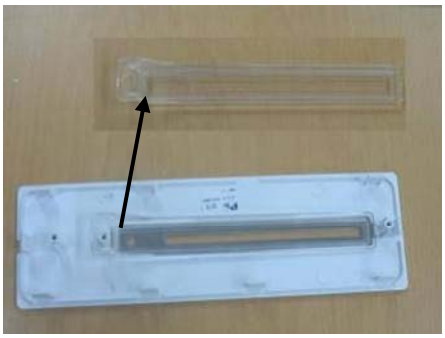
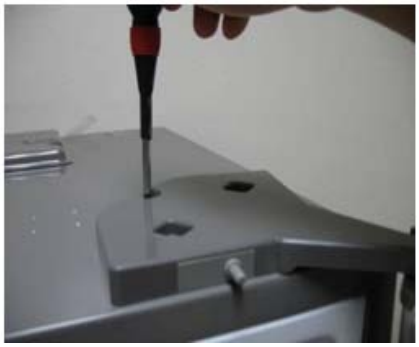
In Error Mode, you can find the current mode (What mode is operationg) and what kinds of Error happen.

1. Front PCB

No	Procedure	No	Procedure
1	 *Put a (-) driver into aperture locating the botton of Panel F control. (Be careful not to scratch the surface.)*	3	 *Unscrew 2 points with (+) driver and Separate FCP from Panel F control.*
2	 *Lift up the Panel F control and Disconnect this from* housing.	4	 *Deco F control can be separated easily.*

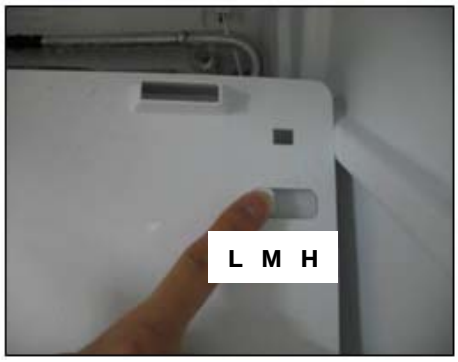
2. Door Switch

No	Procedure	No	Procedure
1	 Remove top cover hinge screw with (+) driver.	3	 Remove the Door Switch from the cover hinge.
2	 Separate the Cover hinge by using driver. Be careful not to scratch the cabniet surface.	4	 Disconnect door switch connector.

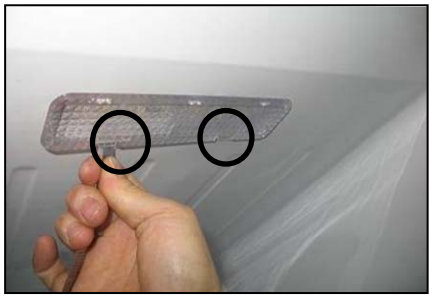
3. Multi-Duct As (In Freshfood Compartment)

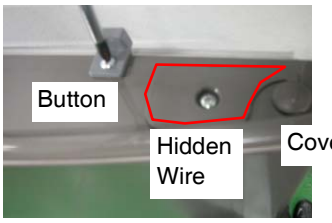
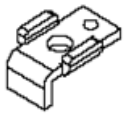
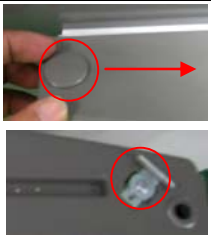
No	Procedure	No	Procedure
1	 Remove screw cap with (-) driver(2 points)	3	 Disconnect the Sensor wire housing.
2	 Unscrew 2 points with (+)driver		

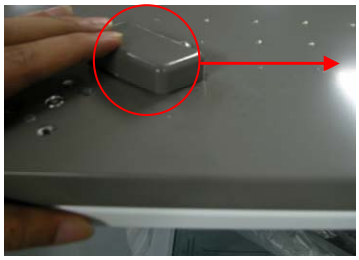
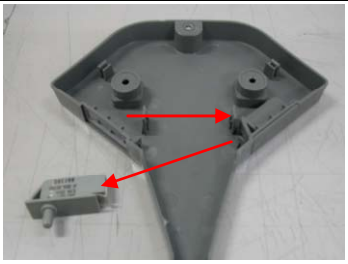
4. Freezer Louver As

No	Procedure	No	Procedure
1	 *Unscrew the fixing screw to remove the Louver F As*	4	 *Remove 3 screws in order to disassemble Louver F As.*
2	 *Remove the Louver F As pulling the top side.*	5	 *When disassembling check the Knob position.*
3	 *Disconnect Fan motor wire housing.*	6	 *Default position is 'M'*

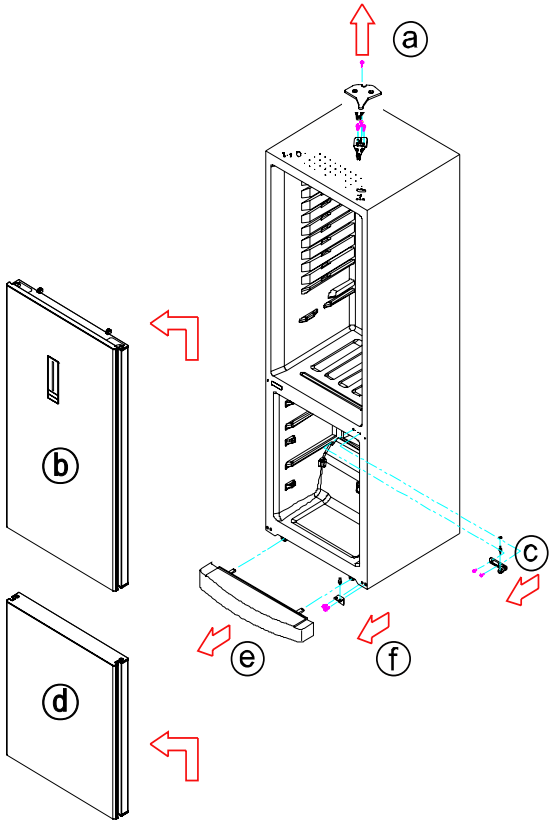
5. LED Lamp (In Freshfood Compartment)

No	Procedure
1	 *Using a thin driver, Pull both locker and* *Separate a Window LED from Liner.*
2	 *Unscrew 2 points with (+) driver*
3	 *Disconnect LED PCB form housing.*

No	Procedure	No	Procedure
1	 Remove top cover hinge screw with (+) driver.	6	 After hiding door wire harness, remove the button Door Switch and Cover Bushing.
2	 Separate the Cover hinge by using driver.	7	 After unscrewing the Cover Hinge Harness *T *L, disclose the door wire harness.
3	 Remove the Door Switch from the cover hinge.	8	 Stopper  Reassemble the cover and button door switch. And also assemble the door stopper to opposite side. (Which is located the Door under Cap.)
4	 Disconnect all wire connector and hinge.	9	  Remove the Middle Hinge. Assemble Cover Bushing & Stopper to the opposite.
5	 Unscrew the Cover Hinge Harness *T *R and hide the door wire harness.	10	 a. Change the location (screw & division hinge cap) b. Change the unnder hinge location to the opposite.

No	Procedure	No	Procedure
11	 Screw the middle hinge to fix the Freezer Door. (Washer should be up.)	14	 Connect the wire harness to door swtich. (Be careful the dircetion.)
12	 Also assemble wire cover on the top plate. (On the right	15	 Assemble Door and hing cover.
13	 Change the plate position and separate door switch.		

1-1. Remove the Door As



a. Remove 'Top Cover Hinge' and 'Top Hinge'

b. Separate 'Refrierator Door'.

c. Remove 'Middle Hinge'

d. Separate 'Freezer Door'.

e. Remove 'Cover Bracket'.

f. Remove 'Under Hinge'.

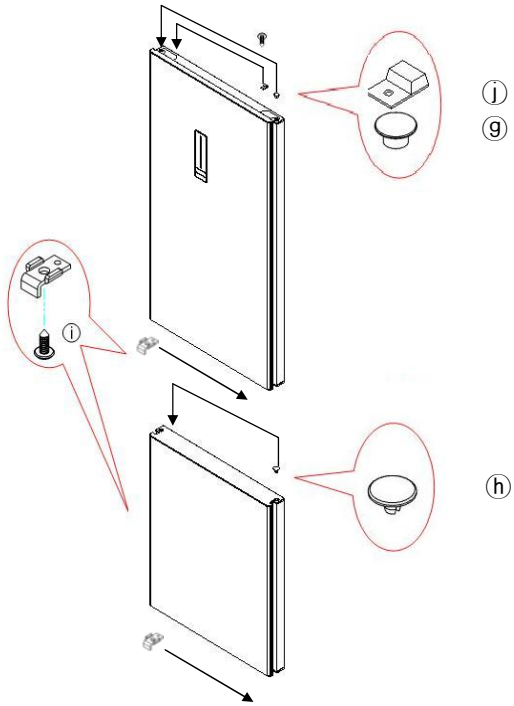
1-2. Reverse the Door Accessories

g. Reverse the position of 'Cover Bushing Refrigeraor Door'
- Unscrew and remove 'Harness Cover'.
- Take out 'Left Door Harness' and assemble 'Harness Cover' on 'Right Door Harness'.

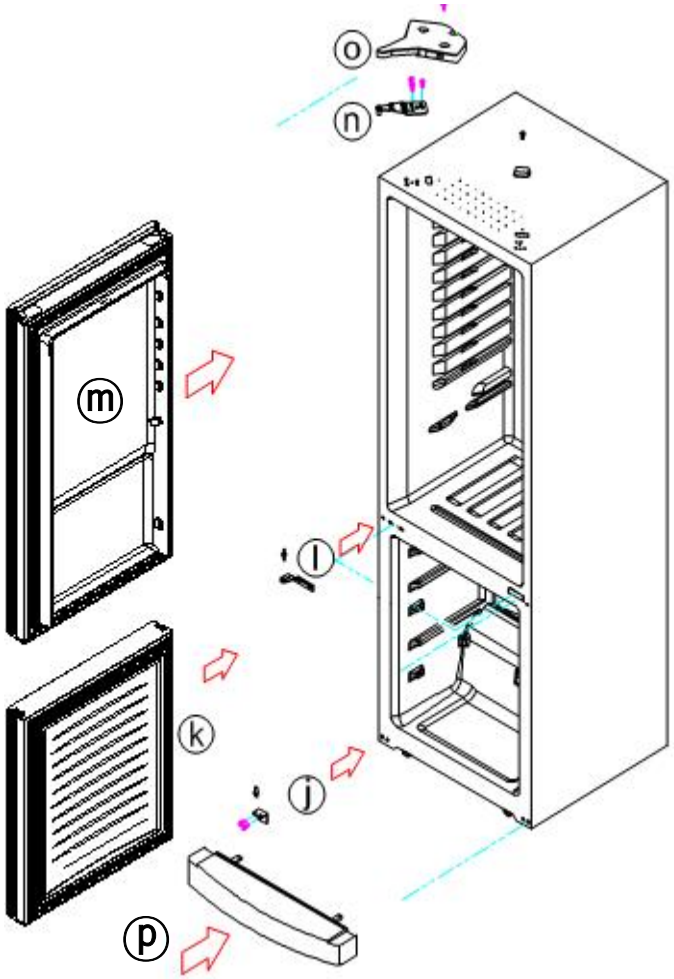
h. Reverse the position of 'Cover Bushing Freezer Door'.

i. Reverse the position of 'Door Stoppers'.

J. Reverse the position of 'Button Switch'.
- Unscrew 'Button Switch'



1-3. Reassemble the Freezer and Refrigerator Door



j. Assemble the 'Under Hinge' on the left.

k. Attach the 'Freezer Door' to Cabniet.

l. Assemble the 'Middle Hinge' on the left.

m. Attach the 'Refrigerator Door' to Cabinet.
(Be careful not to fall down)

n. Assemble 'Top' hinge and connect the FCP wire.

o. Connect the 'Door Switch' wire housing.
Assemble the 'Door Switch' on the other side.

p. Assemble the 'Cover Bracket'.

1. Safety Warning (R-600a Refrigerant Models)

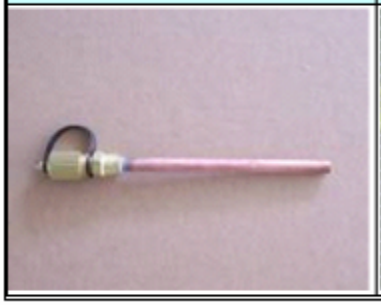
This appliance contains a certain amount of isobutane refrigerant (R600a) a natural gas with high environmental compatibility that is, however, also combustible.

When transporting and installing the appliance, care should be taken to ensure that no parts of the refrigerating circuit are damaged.

Refrigerant squirting out of the pipes could ignite or cause an eye injury. If a leak is detected, avoid any naked flames or potential sources of ignition and air the room in which appliance is standing for several minutes.

- In order to avoid the creation of a flammable gas-air mixture if a leak in the refrigerating circuit occurs, the size of the room in which the appiance may be sited depends on the amount of refrigerant used. The room must be 1m3 in size for every 8g of R600a refrigerant inside the appliance. The amount of refrigerant is shown on the identification plate inside the appliance.
- Never start up an appliance showing any sings of damage. If in doubt, consult your dealer.

2. Tools

1. R-600a ref. Can	2. Can adapter	3. Pinch Plier
		
4. Ref. discharging hose	**5. Vacuum pump**	**6. Welder**
		
7. Coupling Pipe	**8. Leakage Tester**	**9. Electronic-scale**
		

3. Process Summary

1st Step.
R-600a ref.
discharging

- Connect the dis-charging hose to the outdoors.
- Time : 7 min.

2nd Step.
Removing
the remaning refrigerant

- For removing of remaning refrigerant., connect the discharging hose to the vacuum pump
-Time : 10min

3th Step.
Exchanging comp.
& dryer / pipe welding

- Exchange Comp. and Dryer
- Welding the Pipe
- Copper-Copper : 5% rod
- Copper-Steel : 30% rod

4th Step.
Welding
coupling pipe

Coupling cap and gas charging cap should be seperated before welding.

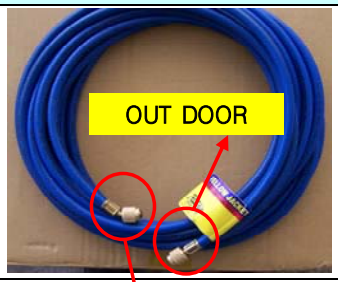
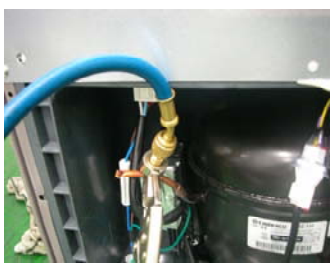
5th Step.
Vacuum

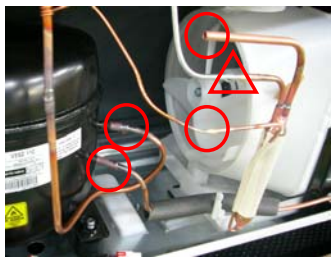
- Check the vacuum with (mani-polder) gauge
- Time : 60~80min

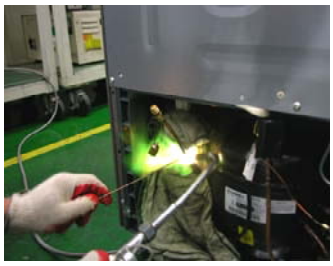
6th Step.
Charge R-600a

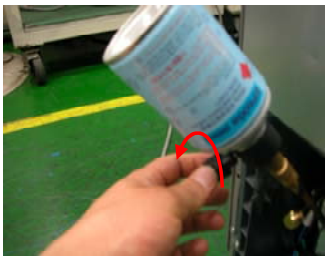
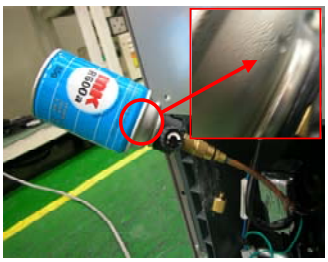
- Charging the ref. on POWER ON
- Time : 10min

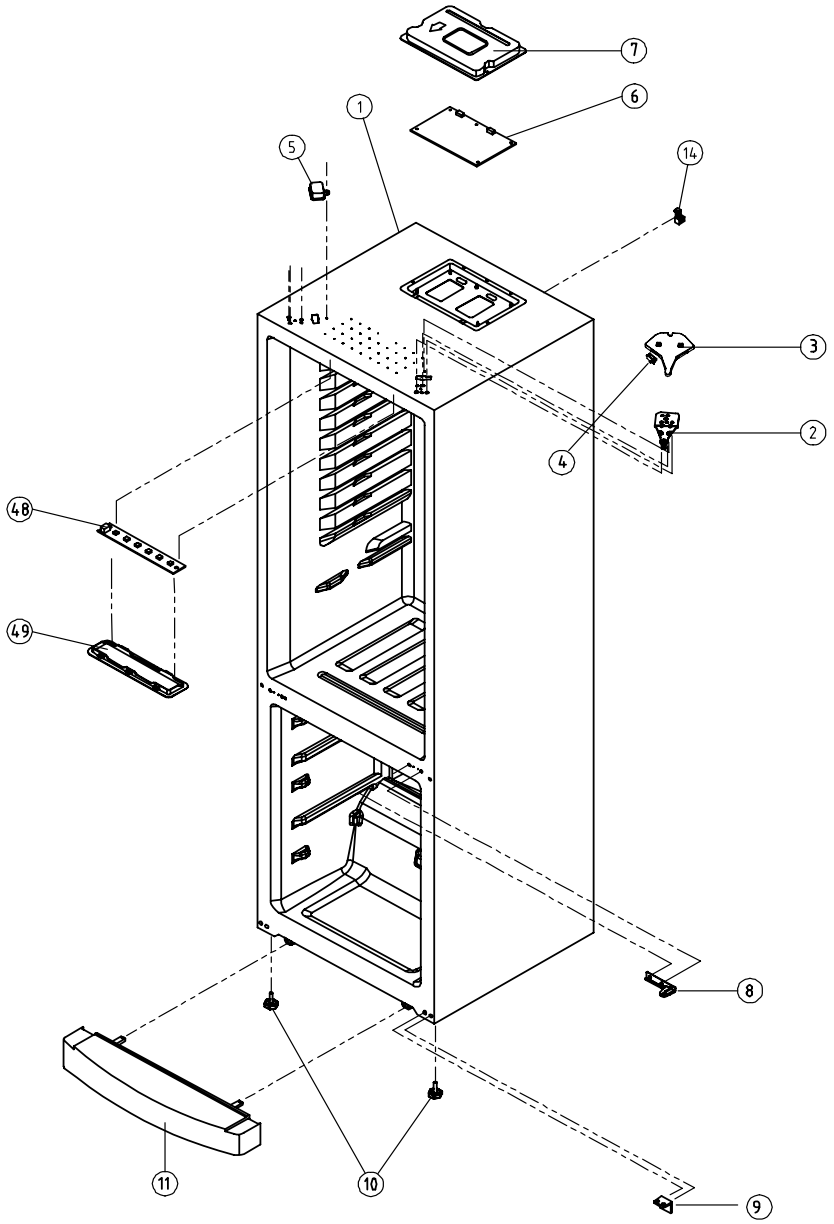
4. In Detail Precess

NO.	SVC process	Image	Details
1	Connecting the pinch-plier & discharging hose		1. Connect the discharging hose to the pinch-plier 2. The outlet of discharging hose should be placed to the outdoor(window)
2	Fixing the pinch-plier & charging pipe		1. Fix the pinch-plier to the compressor charging pipe. 2. Pinch-plier should not be moving freely. ※ If that is moving freely, it would cause fire/explosion as leakage gas in the room.
3	**Discharging the R-600a ref.**		1. Discharge the R-600a ref. to outdoor. [Befor connecting the vacuum pump] ※ It should have enough time more than 7 minutes to discharge.

NO.	SVC process	Image	Details
4	Removing the remaining ref.		1. And then, connect the vacuum pump to the outlet of discharging hose ※Vacum pump should be placed at the outdoor where is able to clear air easily. ※ It should have enough time more than 10 minutes to discharge.
5	Removing the pinch-plier & pipe		1. Disassembe the each pipe (Del-pipe, Suc-pipe, Capi-pipe, Dryer & Hot-pipe) ※ Caution ; A part is easily damaged by flame so that disassemly should be done carefully.
6	Exchanging comp & dryer		1. Change the comp. & dryer. ※ You should check the comp. spec. and assemble correctly.
7	Welding	 	1. Weld the each pipe. ※ O Copper-Copper welding - 5% rod △ Copper-Steel welding - 30% rod
8	Disassembly of charging valve (Coupling pipe)		1. Decap the couplig pipe cap and disassemble the vlave ass'y. ※ If you don't disassemble, the coupling rubber would be melted.

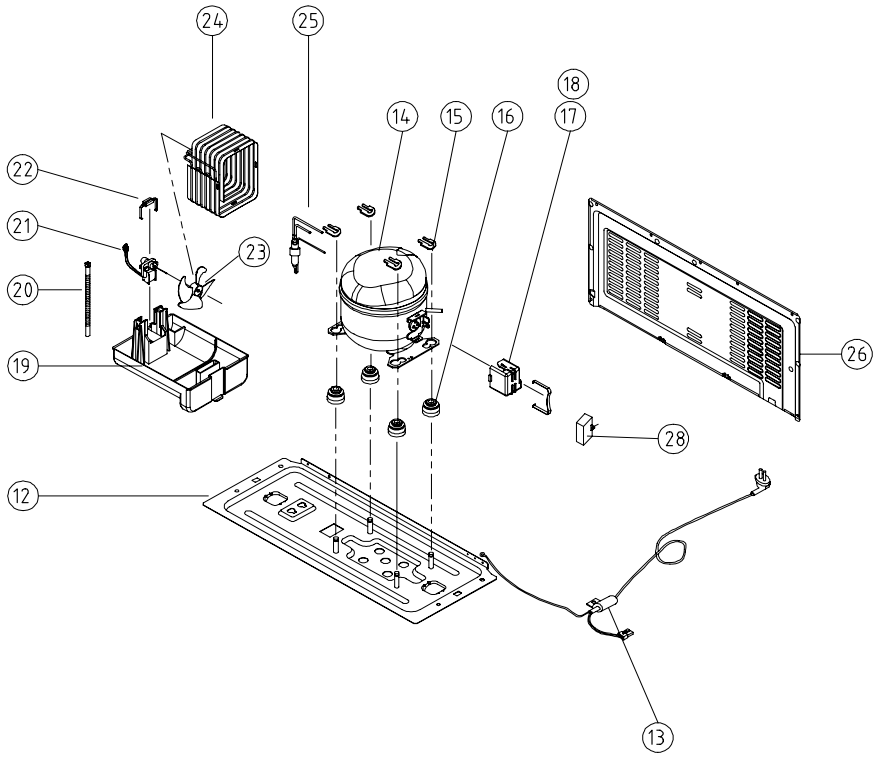
NO.	SVC process	Image	Details
9	Coupling pipe welding		1. Weld after inserting the coupling pipe to the compressor. ※ Use the wet cloth for preventing the other part of machinery-room from damage.
10	Valve reass'y & guage connecting		1. Reassemble the valve ass'y with coupling pipe to clockwise. 2. Connect the blue hose of the guage to the coupling pipe and the yellow hose to the vacuum pump. 3. Open the blue guage lever and start the vacuum pump
11	Vacuum		1. Be vacuumed the cycle with pump. ※ Time : 60~80min => If the vacuum time is less than 60min, ref. COP & air coolong would be weak.
12	Check		1. Check the guage : -76㎝Hg ※ If the cycle is not vacuumed, it would be leak.
13	**Adjusting the amounts of refrigerants (R-600a can)**		1. Check the amounts of R-600a can with scale and discharge the surplus ref. ※ Discharging is surely done at the outdoor where is able to clear air. ※ Tip of adjusting. - Can total weight :160g(Can 75g+Ref. 85g) - Adapter : 145g => Total : 305g - The amounts of charging : 79g => Discharging : 6g => Total : 299g

NO.	SVC process	Image	Details
14	Connecting of coupling pipe & adapta		1. Conect can adapter to the coupling pipe. 2. Charge the ref. with open lever slowly. ※ Refrigerant should never leak in the room.
15	Charging		1. On the power of refrigerator and then start to charge the ref. (10min) ※ Charge the ref. until going out the water vapour condensing on the can outlet.
16	Leakage Test		1. Check the leakage. ※ You must rework from Step.1 when the leakage is detected.
17	Finish		1. Clean and clear around the machinery room when the service is finished. 2. Assemble the machinery room cover.



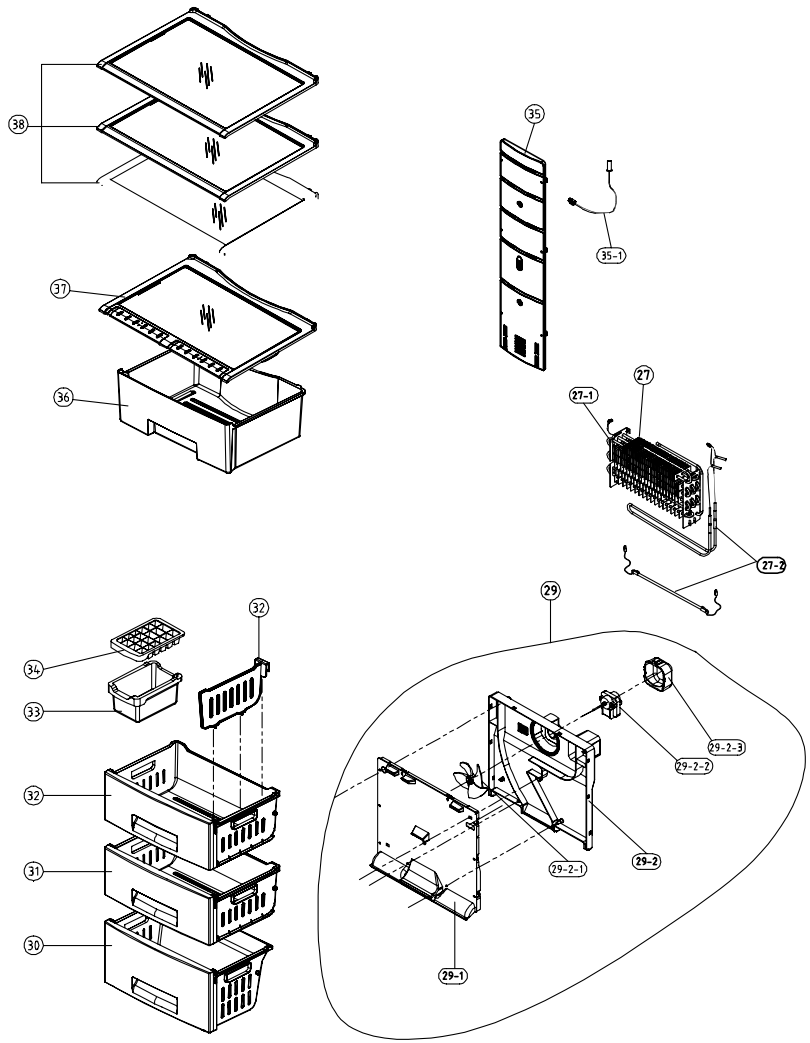
NO	PART-CODE	PART NAME	SPEC.	Q'ty		
				405	425	455
1	-	ASSY CAB URT	WHITE	1	1	1
2	**3012929000**	HINGE *T AS	RFP-340	1	1	1
3	**3001427700**	COVER *T AS	PP (WHITE)	1	1	1
	3001427720		PP (T/SILVER)			
4	**3018125601**	SWITCH H/BAR DR AS	SP101B-2D1	1	1	1
5	**3001412200**	COVER CAB HRNS	PP(WHITE)	1	1	1
	3001412220		PP(T/SILVER)			
6	**30143HN060**	PCB MAIN AS	V3 COMBI(RFP-346)	1	1	1
7	**3001416600**	COVER M/PCB BOX AS	COVER(WHITE)+TAPE	1	1	1
	3001416620		COVER(T/SILVER)+TAPE			
8	**3012928600**	HINGE *M	PO, T3.2	1	1	1
9	**3012928800**	HINGE *U	PO, T3.2	1	1	1
10	**3012104600**	FOOT ADJ AS	PP+INSERT	2	2	2
11	**3001442200**	COVER CAB BRKT AS	PP (WHITE)	1	1	1
	3001442210		PP (T/SILVER)			
48	**30143HJ210**	PCB FRE LED AS	6-LED FR-4 120X20-1.6T	1	1	1
49	**3015517200**	WINDOW F LED *T	ABS	1	1	1

Please check the color, some parts code color dependent.



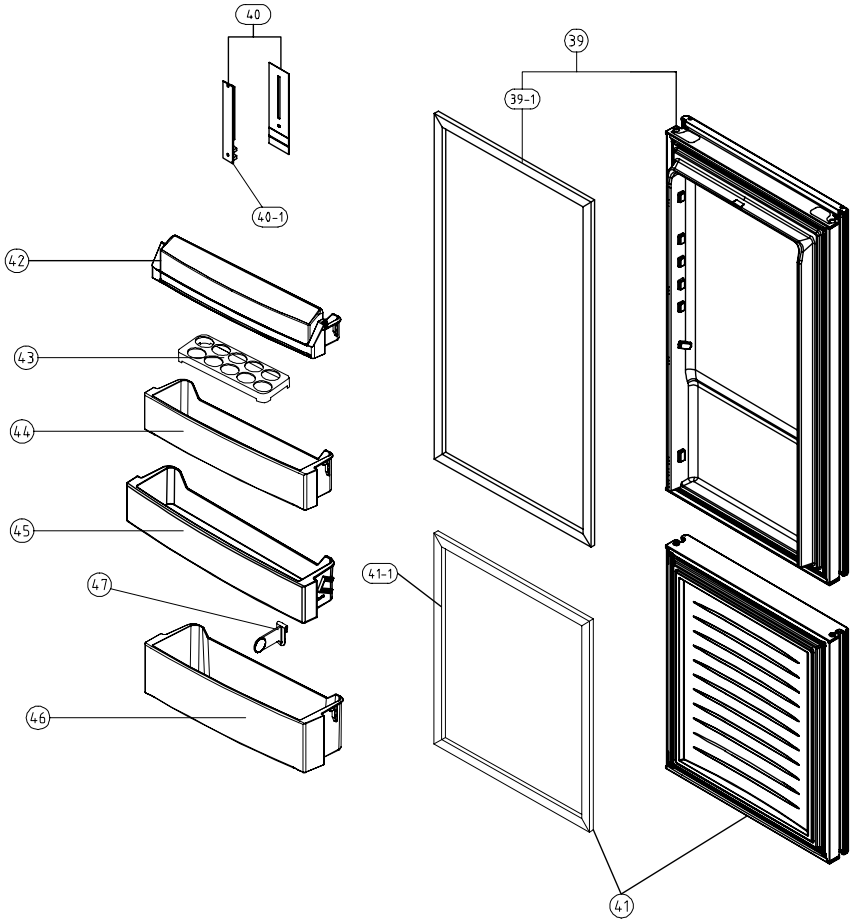
NO	PART-CODE	PART NAME	SPEC.	Q'ty		
				405	425	455
12	**3010349300**	BASE COMP AS	RFP-340	1	1	1
13	**OPTION**	CORD POWER AS	RFP-340	1	1	1
14	**3956198M50**	COMPRESSOR	MQ98NAEM	1	1	1
	3956158K50		YX58LHP5 2			
	3956141250		MD4A1Q-L1U			
15	**3016002500**	SPECIAL WASHER	SK-5 T0.8	4	4	4
16	**3010101600**	ABSORBER COMP	NBR	4	4	4
17	**3018133000**	SWITCH P RELAY AS	MQ98NAEM	1	1	1
	3018131810		YX58LHP5			
	3018132900		MD4A1Q-L1U			
18	**3811402510**	COVER RELAY	MQ98NAEM	1	1	1
	381140050		YX58LHP5			
	3811400503		MD4A1Q-L1U			
19	**3011122800**	CASE VAPORI AS	PP + TAPE ALUMINUM	1	1	1
20	**3013202700**	HOSE DRN B	PE	1	1	1
21	**3015918110**	MOTOR C AS	2100RPM 230V/50HZ	1	1	1
22	**3010102100**	ABSORBER C MOTOR	NR FRB -5350NT	1	1	1
23	**3011802200**	FAN	ABS OD3.17XD110	1	1	1
24	**3014469600**	PIPE WICON AS		1	1	1
25	**3016808100**	DRYER AS	SBS 12G	1	1	1
26	**3001414000**	COVER MACH RM AS	RFP-340	1	1	1
28	**301640600**	CAPACITOR RUN	400VAC /4uF(MQ98NAEM)	1	1	1
	3016405800		350VAC/4uF(YX58LHP5)			
	3016406100		400VAC /5uF(MD4A1Q-L1U)			

Please check the color, some parts code color dependent.



NO	PART-CODE	PART NAME	SPEC.	Q'ty		
				405	425	455
27	**3017065200**	EVA AS	R-134a	1	1	1
	3017068200		R-600a			
27-1	**30127694100**	HARNESS D SENS	R-134a	1	1	1
	3012769400		R-600a			
27-2	**3012822000**	HEATER D AS	R-134a (GLASS)	1	1	1
	3012823000	HEATER SHEATH AS	R-600a			
29	**3018927900**	LOUVER F AS	RFP-341	1	1	1
29-1	**3018923700**	LOUVER F A AS	LOUVER F A+SEAL	1	1	1
29-2	**3018923800**	LOUVER F B AS		1	1	1
29-2-1	**3011836000**	FAN AS	FAN+CLAMP	1	1	1
29-2-2	**3015918210**	MOTOR F AS	2500RPM 230V/50HZ	1	1	1
29-2-3	**3010664700**	BRACKET FAN MOTOR	PP, T2.0	1	1	1
30	**3011198000**	CASE F C AS	CASE+WINDOW	1	1	1
31	**3011197900**	CASE F B AS	CASE+WINDOW	2	2	2
32	**3012535500**	GUIDE F CASE	PP	1	1	1
33	**3010564400**	BOX ICE	GPPS	1	1	1
34	**4010G56012**	CASE ICING	PP(J-360)	1	1	1
35	**3001439500**	COVER MULTI DUCT	ABS, RFP-326	1	X	X
	3001439600		ABS, RFP-346	X	1	X
	3001439700		ABS, RFP-356	X	X	1
35-1	**3012764600**	HARNESS R SENS		1	1	1
36	**3011197500**	CASE VEGETB	GPPS	1	1	1
37	**3001438700**	COVER V/CASE AS	COVER+KNOB	1	1	1
38	**3017851900**	SHELF R INSERT AS	PP	3	3	3

Please check the color, some parts code color dependent.



NO	PART-CODE	PART NAME	SPEC.	Q'ty		
				405	425	455
39	**30100A5000**	ASSY R DR	RFP-326 (WHITE)	1	X	X
	30100A5010		RFP-326 (T/SILVER)			
	30100A5100		RFP-346 (WHITE)	x	1	X
	30100A5110		RFP-346 (T/SILVER)			
	30100A5200		RFP-356 (WHITE)	x	X	1
	30100A5210		RFP-356 (T/SILVER)			
39-1	**3012327700**	GASKET R DR AS	RFP-326	1	x	x
	3012321200		RFP-340	x	1	x
	3012327800		RFP-356	x	x	1
40	**3014247100**	PANEL F CONTL AS	RFP-326,346,356, WHITE	1	1	1
	3014247110		RFP-326,346,356, T/SILVER			
40-1	**30143HN160**	PCB FORNT AS	RFP-346(PCM)	1	1	1
41	**30100A4Y00**	ASSY F DR	RFP-326,346,356, WHITE	1	1	1
	30100A4Y10		RFP-326,346,356, T/SILVER			
41-1	**3012321100**	GASKET F DR AS	RFP-340	1	1	1
42	**3019056100**	POCKET DAIRY AS		1	1	1
43	**3011190800**	CASE EGG TRAY	GPPS	1	1	1
44	**3019055900**	POCKET BOTL	GPPS	1	1	1
45	**3019059700**	POCKET R *M	GPPS	1	1	1
46	**3019055800**	POCKET JUMBO	GPPS	1	1	1
47	**3012532100**	GUIDE BOTL POKT	HIPS	1	1	1

Please check the color, some parts code color dependent.